In this document, we provide additional details, which are sufficient for replicating our simulation study. The parameters in our simulations are the following.

ICC, the Intra-class correlation coeficient in the therapist population

k_{pop}, the number of therapists in the therapist population

m, the number of patients seen by each therapist at each iteration

k, the number of therapists in the clinic population

q, the percentile used to select therapists to remove at each iteration

N, number of iterations

Note that the only parameter we varied was $ICC = 0.05, 0.1, 0.2$. We assume a population size of $k_{\text{pop}} = 1000$ therapists. Our clinic size was $k = 50$. Each therapist saw $m = 30$ patients before each replacement decision was made. Therapists with response rates in the $q = 0.05$ percentile were replaced at each decision. We repeated the process of replacing therapists a total of $N = 50$ times.

The underlying model we assume is a binary mixed effects model, which is defined as follows.

$$\begin{aligned} Y_{ij} &= Binary(p_j) \\ p_j &= expit(\alpha_j) \\ \alpha_j &= \mathcal{N}\left(0, \sigma_\alpha^2 \equiv \frac{\pi^2/3 \cdot ICC}{1 - ICC}\right), \end{aligned}$$

where Y_{ij} is the binary outcome of the ith patient when seen by the jth therapist, p_j is the success rate (or true response rate) of the jth therapist, and mean and variance parameters of the distribution of α_j correspond to a therapist population with an average response rate of 50% and variability of therapist effects of ICC.

The simulation procedure has five steps (as shown in the flow chart in Figure 2):

1. **Simulate the therapist population:** For therapist $j = 1, ..., k_{\text{pop}}$, their true response rate p_j is obtained from our model (by taking k_{pop} iid draws from a normal distribution $\mathcal{N}(0, \sigma_\alpha^2)$, then expit-transforming them).

2. **Select the initial clinic population:** We randomly selected k therapists from the population to join the clinic (reducing the therapists population by k).

3. **Simulate patient outcomes:** For therapist j in the clinic population, patient outcomes were obtained by taking m iid draws from a $Binary(p_j)$ distribution.

4. **Remove therapists with outcomes in the lowest q%:** Response rates for each therapist were computed as the average of their m patient responses. Therapists with response rates in the qth percentile are removed from the clinic population and do not return to the therapist population. (Hence a therapist that has been removed from the clinic cannot return to the clinic.)

5. **Replace therapists with a random sample from the therapist population:** In order to bring the clinic population size back to k, we replace the removed therapists with random draws from the therapist population (reducing the therapist population again).

Steps 3-5 are repeated N times to obtain results for one clinic over time. Finally, we repreated this simulation procedure 10,000 to obtain results over 10,000 simulated clinics.